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ABSTRACT

Written for the Australian general reader who wants to understand important trends in vocational education and training, this document describes skills audits and provides an annotated list of publications for those who want more information. The first section defines skills audits as identification of the skills required and held by the work force and states that such audits may help businesses identify the complete range of skills at their disposal, identify deficiencies in the skills they require, set corporate objectives, maximize productivity, and provide employees with more fulfilling jobs and rewarding career paths. The second section considers skills audits in the broader text of industry and award restructuring that is caused by new technology and the increasing sophistication of consumers. The third section includes implications for workers. The fourth section examines skills audits in detail, including their relationship to competencies, objectives, strategic planning, reporting outcomes, redesigning jobs, and ongoing skills monitoring. The fifth section concerns when to use skills audits and who should conduct them. The sixth section provides four case studies involving skills audits conducted in 1989. The seventh section describes how the outcomes of a skills audit are implemented. Thirty-three publications are annotated in the concluding section. (CML)

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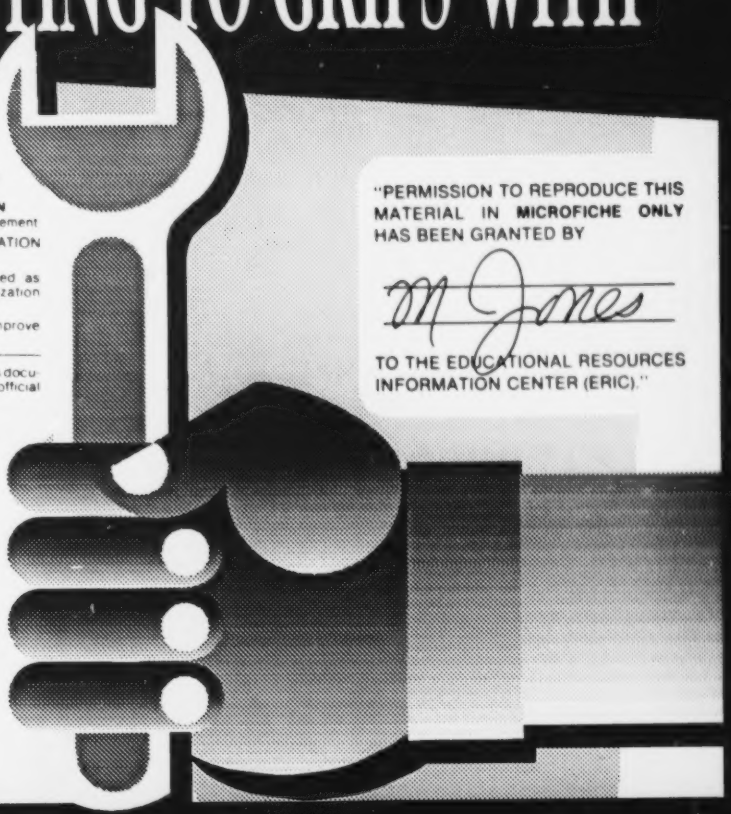

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SKILLS AUDITS

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GETTING TO GRIPS WITH SKILLS AUDITS

Terry W. Clark

This booklet was funded by the Commonwealth Department of Employment, Education and Training.

ABOUT THE SERIES

The "Getting to Grips With . . ." series has been written for the general reader who wants to understand important trends in vocational education and training. The first two booklets in the series have been funded by the Commonwealth Department of Employment, Education and Training.

Each booklet is in two parts. The first part comprises a description of the subject matter in a manner which is intended to be clear to any interested layperson. The second part gives an annotated list of publications for those who want to read further.

Other titles in the series include: *Getting to Grips With Competency-Based Training and Assessment* and *Getting to Grips With Industry Restructuring.*

The Series Editor is Dr. William Hall, Executive Director, TAFE National Centre for Research and Development. The Series Designer is Bain Middleton. Photographs were provided by Advertiser Newspapers Ltd, Austral-Pacific Fertilizers Ltd. and CALS Media Unit, Adelaide College of TAFE.

ABOUT THIS BOOKLET

This booklet has been written by Terry Clark who is employed as a training specialist at the Workplace Resource Centre (S.A.). Much help was provided by Geoff Hayton, Gary Hilton, Peter Thomson, Christine Short, Graeme Plant, Wayne Steed, Richard Curtain, Peter Higgins and the South Australian Centre for Manufacturing Pty Ltd.

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INTRODUCTION

Industry Restructuring and Award Restructuring are hot topics in Australia today. While most people have a general idea about what these involve, few realize the importance of *Skills Audits* to the process. Yet for people involved in industrial relations and training, the term skills audit is becoming increasingly familiar. Many individuals within industry, TAFE, unions and employer associations will need to use, or at least understand, the technique in the very near future.

Put simply, skills audits (or skills reviews as they are sometimes called) are an identification of the skills required and held by the workforce. They help enterprises and industries to:

* identify the complete range of skills at their disposal; and

* identify deficiencies in the skills they require.

This information can be used to set corporate objectives, maximize productivity and provide employees with more fulfilling jobs and rewarding career paths.

In the context of industry and award restructuring, however, the process for conducting a skills audit is not so straightforward. So before we examine skills audits in detail, it is useful to look at the wider picture.

THE BROAD CONTEXT

It is well-recognised that there are two irreversible, world-wide forces compelling Australia to improve its economic performance.

These are:

* sophistication of consumers; and
* new technology.

Sophistication of consumers

During the last twenty years, the markets of industries in the developed nations have changed from being product-driven to consumer or needs-driven.

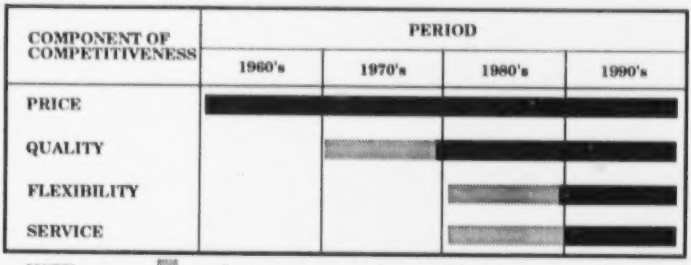
Sophisticated consumers are now demanding:

* innovative products and services that fit their needs exactly;
* fast responses to changes in demand;
* shorter and reliable delivery time;
* consistently high quality; and
* superior service.

This has meant that enterprises have to be just as concerned with meeting the needs of their customers as producing a saleable good or service. Increasingly we are

seeing a move away from competition based mainly on price to a situation where price, quality, utility and service are all equally important factors.

The diagram below, adapted from a chart by Bill Hall and Geoff Hayton, illustrates this trend.



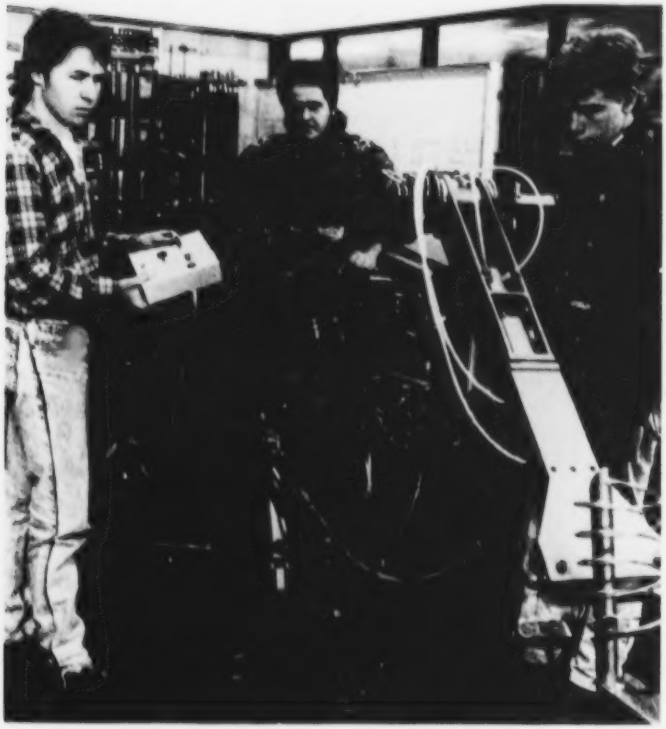
CHANGING COMPONENTS OF COMPETITIVENESS

New technology

In the past, technological advancement has usually meant replacing people with machines or giving people better machines. Recent developments in electronics, microcomputing and robotics, however, have allowed the integration of operations that were previously performed separately.

Some believe this will lead to a deskilling of the workforce in the manufacturing sector, the emergence of unmanned factories and the relocation of labour into the service sector. A more likely scenario in all industry sectors which is predicted by others, is that the new technology will require a more highly skilled workforce. In the future, workers will be required not only to operate machines, but

also undertake programming computer controls, troubleshooting, maintenance, quality assurance and product development.



(CALS Media Unit) How things are ...

(Advertiser Newspapers) ... and how things were.

Implications for the workplace

Whenever new technology is introduced into the workplace, there must be a counterbalancing human response or the technology will be rejected. This is what John Naisbitt describes as "High-tech/High Touch". A good example of this has occurred with the introduction of telephone answering machines. Although most people in business agree that they can be useful, how many of us really like our personal call being answered by a machine? And how many of us still flatly refuse to leave a message after the beep?

So while new technology is needed to serve the markets of the future, we still need to think about the human response. The prevailing culture of the workplace cannot be ignored. Workers will need time to develop appropriate responses to cope with new organisational systems and technology.

For most of the 20th century, workplaces have been organised for mass production (whether needed or not), in a hierarchical fashion with a highly specialised division of labour (what has been called Taylorism). Decision-making was mainly confined to the upper echelons of management and most of the specialist support services (e.g production planning, quality control, management information systems) were centralised.

Now we are witnessing the restructuring of enterprises so that they are capable of flexible, smaller-scale output. Their management structures are becoming flatter with the removal of barriers between jobs. Their workers are becoming multi-skilled and decision-making increasingly will be devolved to self-managed production or service teams.

A comparison of traditional and restructured enterprises is shown in the following table, adapted from Tom Peters.

Comparison of traditional and restructured enterprises

Attribute	Was/Is	Becomes
1. Marketing	. product driven . mass markets . mass advertising	. client-driven . niche markets . targeted advertising
2. Manufacturing	. high volume . limited options . rigid design . machine-centred	. short runs . wide range . flexible design . people-centred
3. Sales & Service	. second class citizens . volume all important . customers a nuisance	. heroes, major source of value added . client relationships . customers prime source of new ideas
4. Innovation	. centralized R & D . a few big projects . science-driven . design elegance	. decentralized R & D . many small projects . customer-driven . design utility
5. Improvement	. rely on innovation rather than improvement	. emphasise incremental improvement - involve all people
6. People	. need tight control . specialized . front-end training . diminished role	. devolve authority . multi-skilled . on-going training . prime source of value added
7. Structure	. hierarchical . managers as guardians . functional integrity	. flat . managers as facilitators . functional barriers broken down
8. Leadership	. detached, analytic . top-down planning	. shared values . bottom-up planning
9. Management Information Systems	. centralized . internally aimed . specialist staff	. decentralized . user/customer friendly . managed by the line
10. Quality Assurance	. allow % of rejects . specialist staff . decentralized	. zero defects . line responsibility . integrated

Implications for the workers

Some of the abilities that workers will need to accommodate industry/enterprise restructuring are:

* adaptability to changes in technology and organisational structure;
* transferability of skills to new areas of specialisation;
* acceptance of the need for training and retraining throughout working life;
* technological literacy;
* customer service skills;
* quality assurance skills;
* decision-making and problem-solving skills;
* interpersonal and team-working skills;
* teaching and learning skills.

Naturally workers committed to this degree of skill formation expect to share the rewards of industry restructuring. In recognition of this expectation, the Australian Conciliation and Arbitration Commission in August 1988 determined a new wage fixing system based on the *Structural Efficiency Principle* (SEP).

The August 1988 Conciliation and Arbitration Commission decision stated:

". . . the reviews will ensure that the existing award structures are relevant to modern competitive requirements of industry and are in the best interests of management and workers. Increases . . . shall only be justified if the union(s) party to an award formally agree(s) to co-operate positively in a fundamental review of that award with a view to implementing measures to improve the efficiency of industry and provide workers with access to more varied, fulfilling and better paid jobs. The measures to be considered should include but not be limited to:

- establishing skill-related career paths which provide an incentive for workers to continue to participate in skill formation;
- eliminating impediments to multi-skilling and broadening the range of tasks which a worker may be required to perform;
- creating appropriate relativities between different categories of workers within the award at enterprise level;
- ensuring that working patterns and arrangements enhance flexibility and efficiency of industry;
- including properly fixed minimum rates for classifications in the award related appropriately to one another with any amounts in excess of these properly fixed minimum rates being expressed as supplementary payments;
- updating and/or rationalizing the list of respondents to the award;
- addressing any case where award provisions discriminate against sections of the workforce."

Award restructuring - the rewards and responsibilities

The SEP had its origins in the "Two Tier" wages system introduced by the Arbitration Commission in March 1987.

The second tier payment was awarded subject to unions and employers reaching agreement on restructuring and productivity-related matters. In some industries, such as metals and engineering, textile, clothing and footwear, and timber, the second tier paved the way for award restructuring. This led to the negotiation of agreements within specific sectors and enterprises.

Under this principle, workers who through their unions apply for an award variation to gain a wage rise, must formally submit to a review of their award.

Enter skills audits

The first step towards developing systematic skill formation practices and workplace restructure at the industry level is to conduct a job or skills audit. In the first stage of industrial negotiations concerning the implementation of the SEP of the National Wage Case Decision of August 1989, a number of industry, sector and enterprise agreements have included job/skills analyses.

WHAT ARE SKILLS AUDITS?

The main aim of industry restructuring is the achievement of significantly higher productivity across an entire industry through skill formation and award restructuring. To achieve this, the restructuring process must be repeated many times over at the enterprise level. Skills audits are used to initiate and maintain this process of change.

> *A skills audit is a systematic process which identifies the present stock of skills or competencies held by the workforce whether or not they are being actively used (i.e. what is), and compares these with the skills or competencies that are needed (i.e. what should be).*

For a thorough discussion about competencies, see the title in this series called *Getting to Grips With Competency-Based Training and Assessment.*

The aims of a skills audit are similar to those of a financial audit or stocktake. It attempts to find out what is actually present and compares this with what ought to be present.

To determine what skills ought to be present in a particular enterprise or industry, a *skills analysis* needs to be carried out. A *skills analysis* is a systematic process which identifies the skills or competencies that are needed for each job.

As well as determining job-specific skills (e.g. type correspondence at 60 words per minute with 98% accuracy), generic skills (e.g. be a flexible and adaptable

worker) should also be stated. The outcome of this process is usually a list of skills that can be compared directly with those found to be present by the skills audit.

Skills audits are usually associated with the strategic planning of how an organisation or industry can move from its present level and mix of skills to those that will be demanded in the future as a result of new technology and changed work practices. If skills audits are part of an award restructuring exercise, they should be conducted in the context of the prevailing industry strategy. If a skills audit is carried out after award restructuring simply to reclassify positions, higher productivity will not necessarily be achieved.

(Advertiser Newspapers)

Skills audits may be undertaken at a number of levels. For example, in aviation, audits could be conducted:

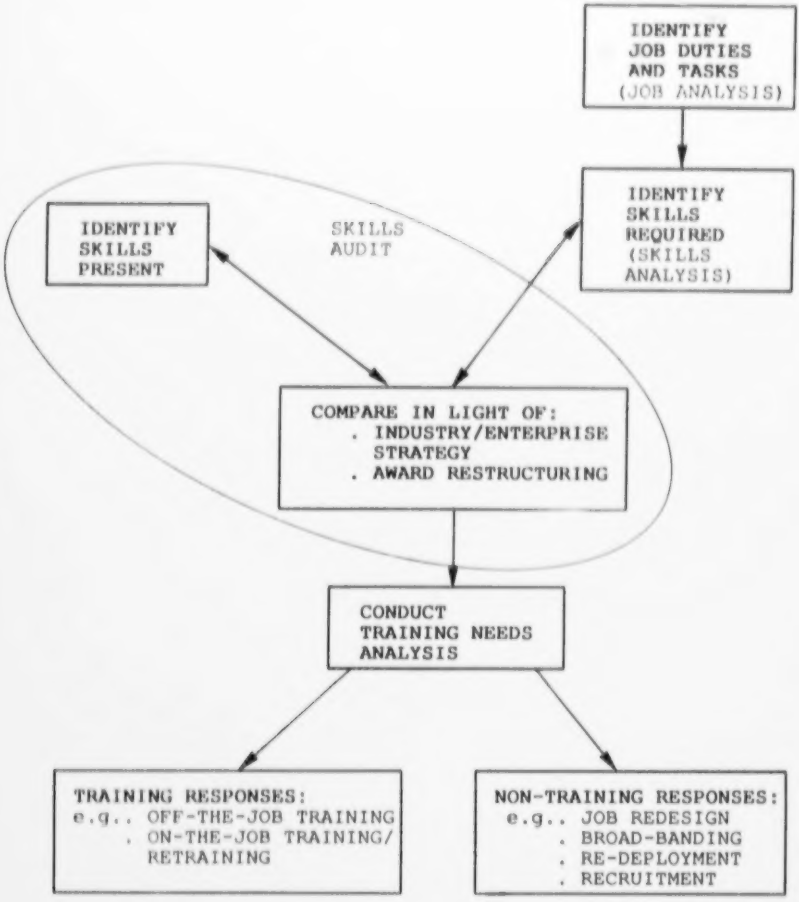
* across industries (civil aviation and defence)
* within one industry (civil aviation)
* across enterprises (Ansett & Australian)
* within one enterprise (Ansett)
* within a department (jet engine testing).

A skills audit should not be confused with a *training needs analysis* (TNA). A TNA is the identification of the difference between the actual condition (what is) and the desired condition (what should be) in human performances within an organisation or group of organisations in terms of human knowledge, skills and attitudes. While the key steps of defining actual and desired skills are common to both, skills audits may not go on to consider training needs.

On the other hand traditional TNAs rarely:

* are jointly commissioned by employers and employees;
* consider present and future changes to work organisation and job design;
* fully consider non-training outcomes.

Skills audits also differ from occupational and job analyses. Occupational and job analyses involve analysing what duties and tasks are performed in a particular occupation or job. The relationships between job analysis, skills analysis, skills audit and training needs analysis are illustrated in the following diagram.



It is worth noting that these various techniques tend to concentrate on the identification of skills and competencies, rather than on attitudes and preferences. This can limit their usefulness where jobs require a particular set of attitudes, in addition to skills and knowledge. And proven competence does not necessarily mean that a person is willing to use that competence at work.

For instance, consider a self-employed electrician who also has good welding skills. This person would probably be motivated to undertake the occasional welding job, whereas a salaried electrician with equal welding skills may have no incentive to do so. Or take the case of the former Perth university professor who is now a taxi driver by choice.

In cases like these, it will be necessary to supplement skills audits with other techniques that identify employees' attitudes or measure their preferences.

Skill audits should exhibit the following features:

- a clear set of objectives that link skills to industry/enterprise strategy and changes in work organisation and industrial awards;
- well-defined, step-by-step process which is readily understood by all the industrial parties (i.e. management, unions, employees, industrial tribunals);
- timely consultation with all the industrial parties;

* a procedure for reporting the outcomes;

* job re-design methods;

* on-going skills monitoring.

By examining these features one at a time, we can build up a picture of a typical skill audit.

Objectives that link skills to enterprise strategy

Most businesses recognise the value of long-term or strategic planning. A typical strategic plan consists of:

* a mission statement which is a declaration of the enterprise's main aim;

* a situation, or S.W.O.T. analysis, which lists the enterprise's **s**trengths, **w**eaknesses, **o**pportunities and **t**hreats;

* a marketing plan;

* a financial plan;

* a production plan;

* a human resource plan.

The plan contains objectives that are finite, measurable and achievable within stated budget and time limits.

Skills audits must have objectives that are consistent with an organisation's corporate plan. The stock of skills that a

company requires will ultimately be determined by its markets, work organisation and use of technology. Ideally an enterprise should be using proper market research to predict changes in its customers' needs so that it can, among other things, ensure appropriate skills formation among its workforce.

For example, a company may discover that its customers are prepared to pay a premium price for a product that it has the technology, but not the skilled labour, to manufacture. Its initial choice is either to incorporate this product into its range, or forgo the market opportunity. If the company decides to go ahead with production, it must re-examine its human resource plan.

A skills audit undertaken at this point might suggest there is a sufficient skills base to enable existing workers to be trained. On the other hand, it may reveal no suitable skills base and point to recruitment as the best solution. Irrespective of the outcome, the new stock of skills the company acquires is likely to open up further market opportunities. These in turn will require further revision of most elements of the corporate plan.

Should the skills audit reveal hidden talent, an enterprise may decide to expand its objectives to take advantage of these. Conversely, if an audit shows up severe skill shortages, its objectives may need to be curtailed.

All employees should be given a thorough explanation of the purpose of a skills audit. Ideally the objectives of the audit should be quantifiable and measurable, with dates set for completion and review. Sometimes, however, objectives are difficult to quantify or measure precisely.

For example:

- to provide more enriching and fulfilling jobs;
- to create a more welcoming environment for clients;
- to broaden employees' choice of career paths;
- to develop high job motivation in employees.

In such cases, judgement as to whether the objectives have been achieved may be simply yes/no, subjective or inferred from other outcomes (e.g. a rise in sales, or a fall in labour turnover).

A well-defined process

In the context of award restructuring, skills audits usually involve the participation of two or more industrial parties. The process must be unambiguous and developed in consultation with the parties. Normally the initiator will convene a meeting of all the relevant parties within the organisation. These could include: senior management, first level supervisors, trade union(s) representatives, rank and file workers, company specialists (e.g. training officers) and external specialists (e.g. TAFE, private consultants). This meeting could either assume responsibility for the entire process, or delegate the actual implementation to one or more individuals, while retaining overall direction and management.

According to Richard Curtain, skills audits normally consist of the following steps:

- production of a job structure profile of the firm in terms of the skill level, qualifications and work experience of its employees;

- identification of employees whose level of training and experience is deficient;

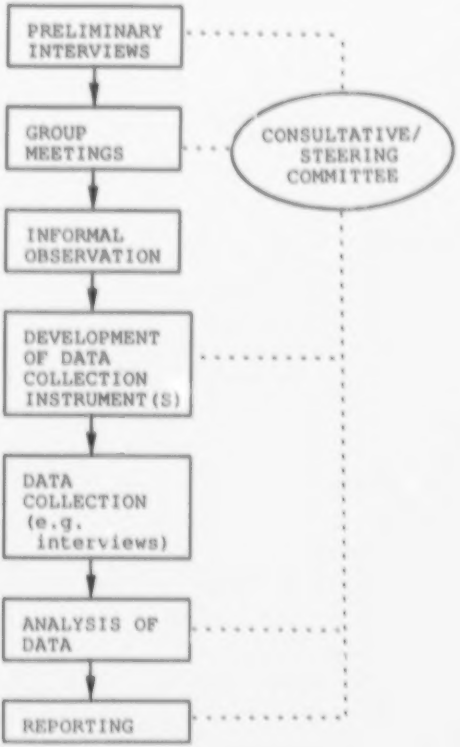
- provision of a forecast of the firm's skills requirements; and

- assessment whether these needs can be filled by retraining or redeploying current employees.

Details of an audit may vary according to the needs of individual organisations. One approach which has been used successfully is indicated in the flow chart on P.20.

The most important aspect of the approach outlined in the flow chart is the in-built consultative process at certain key stages. For example, the second step involved group meetings in which all workers affected by the skills audit attended meetings in which the aims and processes were described and discussed. If consultation does not occur throughout, then the final outcome may be rejected because it fails to reflect the true needs of one or more of the parties. On the other hand, if a problem emerges and the group is able to resolve it when it first occurs, then subsequent stages should not be jeopardized.

AN EXAMPLE OF A SKILLS AUDIT APPROACH



Skills audits may use one *or more* of these five types of data collection methods:

- questionnaire-based;
- interview;
- group process;
- observation;
- descriptive.

A detailed discussion of these methods, including their strengths and weaknesses, may be found in Hayton and others (1988) in the further readings.

It is desirable to use more than one method to obtain full and reliable information. For example, a group process method could generate a list of skill requirements, followed by a questionnaire to identify skills possessed by each person.

Some of the stages, such as developing the data collection instruments and analysing the results, are likely to be undertaken by a trained specialist. This could be a company training officer, a TAFE lecturer or academic, a union research officer or a private consultant.

Timely consultation

The importance of timely consultation cannot be overemphasised. Skills audits which fail to involve all the stakeholders from the very outset face a real risk of either never getting off the ground or facing an up-hill battle for acceptance by the ignored parties.

Practical experience has revealed that the most basic task of raising employee awareness about the process can be difficult. In one firm it was found that written information about a planned skills audit was either not read or mis-understood by a large proportion of the workforce. An in-house facilitator then tried holding meetings with groups of about 30 employees, but found that these were too large for effective two-way communication. Eventually it was discovered that weekly meetings with groups of 10-12 workers were successful. These were supplemented by regular newsletters to give all workers a factory-wide perspective.

Another finding at this firm was that employees are often reluctant to reveal their ignorance or confusion about the industrial process. Only by coaxing individuals to explain their understanding of the concepts and jargon in the small group meetings was it possible to identify and overcome misunderstandings.

It should be remembered that the consultation process will be a new experience for many employees. Thus it cannot be assumed that every worker or supervisor will have the skills required to conduct an effective meeting. In the case of the firm cited above, the Trade Union Training Authority (TUTA) was called upon to conduct training in meeting procedure, goal setting and action planning.

Some industry groups and trade unions have formally recognised the importance of effective consultation in undertaking job analyses and skills audits. For instance, the Australian Timber Workers Union and the Joint Textile Clothing and Footware Award Restructuring Working Party have recently published guidelines for consultation and communication as integral parts of the award restructuring process.

Organisations undertaking a skills audit for the first time should plan to spend very considerable amounts of time and money on consultation, especially during the early stages. This investment may be regarded as insurance against setbacks experienced further down the track.

Other factors that influence the timing of consultation which may appear mundane, are nonetheless important. These include:

* scheduling meetings at times when all the parties are able to attend (e.g. shift workers and those on annual leave);

* scheduling meetings when people are in a receptive frame of mind (e.g. 4.00 pm on Friday may not be a good time!);

* fitting in with other priorities (e.g. production, budget and reporting cycles).

Reporting the outcomes

Because skill formation is moving away from the idea of training for a specific period of time to a competency-based approach, the reporting and recording of competencies is crucial. If organisations are to provide career paths through on-going development of their employees, it is very important to keep an accurate record of skills audits. In all but small enterprises, the resulting information should be in a form that can be entered on computer. There is a wide range of general purpose database software and a few special purpose programs that can be used to store and analyse occupational and organisation data and produce reports.

The outcomes of a skills audit fall into two categories:

- the analysis of skills required against skills in stock; and
- recommendations for action.

As far as possible, the analysis should contain objective, quantified information. This may be kept by supervisors in the form of a confidential skills register or skills profile. The register should identify whether an employee is expert, adequately trained, undergoing training or yet to be trained in a particular skill. An employee's skills record must be available to the individual concerned.

Many workers and their unions are worried that employers have ulterior motives for the use of information about employees' skills. For this reason, the consultative committee should ensure that the audit never be used for

purposes such as performance appraisal or comparison between employees.

Recommendations should include both training and non-training responses. It is important not to overlook non-training options such as redeployment, recruitment, job redesign and technological solutions. While the outcomes will probably hold few surprises for those who have been closely involved in the skills audit, they may come as a shock for others within the organisation. It is a good idea, therefore, to communicate progress widely.

Furthermore, the reports for general consumption should be unambiguous, be as non-technical as possible, and avoid identifying particular individuals.

Job redesign

One of the non-training outcomes is to redesign the job. The movement to promote "quality of working life" has identified a number of principles to guide in the redesign of jobs to maximize the use of employees' skills and increase job satisfaction. According to Peter Higgins these include:

- the concept of closure, where a team of workers complete a whole series of tasks (e.g. the assembly of a car component), rather than performing one small repetitive task;

- the inclusion of control and monitoring tasks, whereby workers are delegated the responsibility for controlling the workflow and checking production both quantitatively and qualitatively;

- task variety, where workers are given the choice to move between tasks;

- self-regulation, where workers have the freedom to choose how they accomplish their production objectives; and

- co-operative job structures which encourage employees to use the widest possible range of skills from within the same work group.

Traditional work redesign techniques such as methods study tend to be too narrowly focused to bring about effective reform. These methods should be expanded in a systematic fashion to:

- ensure that employer-employee consultation takes place;

- take account of enterprise corporate strategy;

- maximise the full range of employees' skills;

- ensure that workers are reorganised into more flexible and self-regulating units.

In their report on the Pilot Project on Participative Job Redesign on the Melbourne waterfront, Richard Curtain and Neil Watson outlined the following staged approach.

1. Preparatory stage:

   - gain support of the main stakeholders and, if necessary, form a steering committee;
   - brief the workforce in small group meetings;
   - convene an initial design project team.

2. Environmental analysis stage:

   - specify the project mission and objectives;
   - specify the possibilities and constraints;
   - specify the impact on regulations, market forces, industrial relations and customers.

3. Technical/work sub-system analysis:

   - define the area, jobs, technology concerned;
   - describe the main groups of operations and tasks that need to be changed;
   - list the main technical problems.

4. Social/people sub-system analysis:

   - analyse the current jobs performed;
   - assess the flexibility in the current arrangements;
   - assess the nature and impact of rewards.

5. Introduce the principles of good design:

   * autonomy, variety, learning;
   * participation in planning and review;
   * delegation of responsibility and authority;
   * closure and team-work;
   * ensure support systems are not excluded.

6. Application of these principles:

   * test, review and refine.

7. Implementation:

   * negotiate terms and conditions;
   * provide necessary resources;
   * organize training.

This participative approach to job redesign is based on the simple premise that those directly affected, know the system best. According to Curtain and Watson, stages one to six are likely to take a full-time project team between ten and fifteen days to complete.

Where industry-wide awards are being restructured, stage 2 also could include examination of the implications of award restructuring and stage 3 also could include industry-wide job standards.

On-going skills monitoring

The process of taking stock of the skills that exist in an organisation at any one time is like taking a team photograph . . . a tangible record is provided that may be useful (and amusing) both now and later. But if organisations are to grow and adapt to the constant changes of technology and market forces, the process must be repeated.

Once a skills audit has been undertaken, it can be modified and improved on subsequent occasions to take into account changing conditions. It can become as routine as stocktaking or financial auditing, and be just as useful.

The essential ingredient for ensuring that skills audits become part of corporate policy is commitment from the stakeholders. The best way of gaining this commitment is to ensure the success of the initial process. And if the steps outlined above are followed, there is every chance that this will be achieved.

WHEN TO USE AND WHO SHOULD UNDERTAKE SKILLS AUDITS

When to use

Skills audits are the next logical step following initial agreement between industrial parties to undertake award restructuring. This assumes, though, that an industry/enterprise strategy is already in place. If this is not so, it makes little sense to undertake a skills audit in isolation.

Occasionally the timing of a skills audit will be determined by an industrial tribunal. In most cases such rulings have fixed time-lines for the accomplishment of their objectives. While some industrial parties may welcome such deadlines as catalysts for action, they can be problematic. Most experienced industrial relations professionals agree that it is better to negotiate for a longer period in order to achieve an acceptable long-term outcome, than opt for some expedient compromise that may fail quite soon. Nevertheless, when tribunals set deadlines, the parties involved will need to plan well in order to meet them.

Outside the context of award restructuring, skills audits can be used at any time to formulate or fine-tune an enterprise's strategy. They are particularly useful for developing a sound human resource plan.

As the award restructuring process gathers momentum, demands on the services of competent skills auditors will be at a premium. So it is useful to consider where such talent may be found.

Who should undertake skills audits?

Some people believe that skills audits can be performed by the untrained and inexperienced. A senior representative of a major employer association recently stated that skills audits were simple matters that could be easily performed by any clerk . . .

> "All you have to do is check employees' personnel records and list their job title, educational qualifications, hobbies etc"!

This is a gross over-simplification of the audit process and shows misunderstanding of the required skills level. This is not to say that skills audits are so mysterious that they need remain the preserve of experts. Rather, they are systematic exercises that require thorough knowledge of the process, understanding of their context and determination to see them through.

Because skills audits are a relatively recent phenomenon in this country, there are relatively few experienced local practitioners. Those with experience in skills audits are mainly full-time management consultants, academics, researchers (such as the TAFE National Centre) or industry-based human resource professionals. Additionally, the Commonwealth Department of Industrial Relations is establishing a national network of Workplace Resource Centres. It is intended that these will have teams of specialist consultants to advise industry and unions on most aspects of award restructuring, including skills audits.

While most of these people are generally accessible on a fee-for-service basis to organisations wishing to undertake a skills audit, the availability of industry-based people is likely to be more restricted. This is unfortunate since industry-based practitioners usually have greater experience of the day-to-day issues that a skills audit involves.

Ideally an organisation undertaking a skills audit needs a champion or strong supporter of the exercise. This person needs the ability to initiate, sell and see the audit through.

Since individual employees will seldom have the expertise to cover all the technical, human and industrial relations aspects of a skills audit, it may be necessary to bring in an external consultant.

A consultant's expertise can be judged against the following criteria:

- ability to correctly interpret clients' needs;
- knowledge of skills audit methodology;
- prior experience in conducting skills audits;
- resources available, including survey instruments, computer software for collecting and analysing information;
- ability to act as a facilitator and troubleshooter;
- knowledge of the specific industry/enterprise;
- willingness to train clients' staff to conduct further skills audits in-house.

External consultants will seldom be able to identify and deal with all the problems inside their client's organisation. While they may be able to offer objective and technically sound advice, they may be unaware of the organisation's culture and unwritten traditions. For this reason it is vital to involve the workforce via the consultative mechanisms mentioned previously. Otherwise the outcomes may be received half-heartedly or even rejected outright.

Because of their expertise in specific subjects, curriculum development and skills assessment, some TAFE systems will also play a major role. They have already been involved in several innovative training partnerships with industry, such as the plastics and rubber technology centres and also with the far-reaching skills formation program linked to award restructuring at BHP's Steel Coated Products Division.

Contributions that TAFE could make include:

- conducting skills audits;
- training in the methodology of skills audits;
- developing tailor-made courses to meet training needs identified by skills audits, especially in the area of non-trades skill formation;
- accrediting/assessing industry-based training programs;
- encouraging access and participation in skill formation by groups that have been traditionally excluded from formal training schemes:, e.g. women, Aborigines, migrants, disabled.

With over 240 colleges across Australia, TAFE is well placed to assist local enterprises, especially in country areas.

CASE STUDIES

The four case studies described below contain some or all of the elements of a good skills audit. All were conducted in 1989, but each in a different State, at different levels of analysis and using varying methods of data collection. Because some of the organisations involved requested that certain details of the audits remain confidential, the processes are discussed in general rather than in specific terms.

Aged care institutions in WA: a cross-enterprise study.

This job analysis and skills evaluation of semi-skilled staff working in aged care institutions in Western Australia was conducted during September and October by Christine Short of Work Matters Research Consultancy and Prof. Charles Mulvey of the University of W.A. The study was commissioned by the Voluntary Care Association (VCA), a group of charitable organizations that own and operate 113 separate institutions in WA.

Underpinning this study was the VCA's objective to achieve more flexible work arrangements through multi-skilling. As the first step towards achieving this goal, the VCA negotiated with the Federated Miscellaneous Workers' Union to review the job roles and career paths of domestic staff. This agreement was negotiated as part of the first level implementation of the SEP of the August 1989 National Wage Case decision.

The survey took the form of a job analysis and job evaluation questionnaire that was applied to 125 employees

in a stratified sample drawn from 20 of the 113 institutions. 100 of the respondents were semi-skilled workers, the remaining 25 coming from supervisory positions, and included senior managers and trainers.

All respondents completed the survey in the presence of the principal researcher or her assistant. Each questionnaire took between 45 and 60 minutes to administer. The researcher also sought to discover whether the respondent performed tasks that were normally performed by another worker, but which could easily be performed by the respondent.

Each respondent then completed a Job Evaluation questionnaire that sought information on the following points:

- Minimum education level required for job
- Length of experience for full job competency
- Scope of activities (extent and diversity)
- Interpersonal skills (e.g. negotiation, gaining co-operation)
- Kinds of problems (analytical and creative skills)
- Instructions received (measure of autonomy)
- Influence on results
- Personnel supervised (number under control)

- Subordination level (position within organisation).

At the time of writing the final outcomes of this survey have yet to be disclosed. Nevertheless, the researcher reported that sufficient information was obtained to:

- describe each job classification in terms of its title, major purpose, results and remuneration;
- construct an inventory of tasks for each job classification;
- analyse each task in terms of its relative degree of learning difficulty, time taken to learn, contribution to job and actual and percentage of total working time spent on each task;
- identify tasks for broad-banding purposes that do not require extra training;
- make an assessment of education, experience and generic skill levels required to each job classification;
- map out possible new career paths.

Comment

This example probably falls a little short of a true skills audit insofar as the analysis was conducted more at a task, rather than a skills level. In other words the study concentrated more on identifying tasks, rather than the skills required to perform these tasks. While it is true that certain skills (e.g. interpersonal, problem solving) were examined in detail, for the most part the analysis remained at the task level.

Of greater significance is that the survey was initiated and managed by the employer, rather than following the consultative model outlined above. While the union agreed to the review, they gave no commitment to accepting the outcomes.

It remains to be seen whether this lack of close involvement by the union will lead to difficulties with implementation of the recommendations. Nevertheless the data collection methodology appears to be sound and the researcher reported that the respondents experienced no difficulty in completing the questionnaire. This is probably related to the researcher and her assistant personally administering each questionnaire. Although this is time-consuming, it can pay off in the long run provided the sample size is manageable.

Some of the questions were open-ended (e.g. "What is the major purpose or role of this position?"). While the consultant did not report any problems in dealing with the range of responses to these, it can be difficult to analyse the responses to open-ended questions.

SA textile clothing and footware industry - made to measure sector: An industry sector study.

This review of skills was undertaken on behalf of the Australian Textile Clothing and Footware Industry Training

Council (SA Division) by William G. Trengrove, Stewart Mitchell and Kym Fisher. The consultants, who employed Claire Royal of Royale Designs to act as a specialist technical adviser, began work in May 1989.

The Made to Measure sector in SA consists of 54 businesses with an average of 3.4 employees per firm. These are typically small owner-managed firms producing tailor-made garments to customers' exact specifications.

The Industry Training Council (ITC) formed a tripartite steering group to oversee the project. This group met twice, once prior to the skills review and once after.

The first method of data collection used consisted of semi-structured interviews with owners or managers at 25 firms. These lasted two hours on average and asked the following questions:

- Under what occupations would you classify the staff working in your business?
- What responsibilities do each of the staff members have and what are the duties they perform?
- Could you outline the process from the point of view of customer contact through to garment finishing in your firm?
- What characteristics would/do you look for in prospective trainees?

More general questioning aimed to obtain background information on:

- existing training arrangements
- the future of the Made to Measure sector
- work load patterns
- employment patterns and prospects.

During these initial interviews the consultants persuaded ten firms to participate in further phases of the project.

Progress of the project was reported by the consultants to all 54 firms in two newsletters. The first newsletter resulted in some extra firms requesting to be included in the interviews.

The next stage of the survey was a seminar attended by the consultants and twelve representatives of the Made to Measure sector. Using a DACUM methodology, the participants compiled a task inventory for the sector.

This information was used by the consultants to construct a questionnaire to acquire more detailed data for:

- an Occupational Analysis
- a Task Analysis
- a Skills Analysis and
- a Training Needs Analysis.

Following trialling and minor modification, the questionnaire was distributed to the 54 firms. After telephone and personal follow-up by the consultants, responses were received from 27 firms.

The outcomes of the survey were summarized and presented to the ITC in late July. The Occupational Analysis described nine occupations in the sector and the Task Analysis, derived from the Occupational Analysis, identified ten main skill categories. A key finding was that 80% of managers (who comprise 38% of the workforce) have skills in all ten areas.

The ten skill categories were then further analysed. Each one was broken down into between five and fourteen specific items of skills, knowledge and attitudes. Respondents rated each of these as:

- not important
- slightly important
- important
- very important.

The Training Needs Analysis report took the form of responses to some 21 questions. The consultants decided to supplement this with extra information gained at a second seminar. Their overall finding was that in SA there is very little formal training occurring that is specific to the needs of the Made to Measure sector.

Comment

While this was a very comprehensive study, it lacks some of the features of a full skills audit. Although it determined the skills that were needed by this industry sector, it did not attempt to identify whether individual employees actually had them. This is certainly a pity since the Textile Clothing and Footware ITC is planning to produce a modularized training program, but does not know who its target audience will be!

Nevertheless, there are many commendable features of the project:

- linking of skill requirements to industry sector strategy
- good consultative and communication processes
- use of an industry specialist
- multiple survey methodologies (which help to confirm results
- concise, clear reporting.

F.G. Strang Pty Ltd: An enterprise study

This skills review was conducted in January at the Melbourne stevedoring firm of F.G. Strang Pty Ltd, as part of the Inter-state Commission's Waterfront Investigation into participative job design. Richard Curtain and Optimise Australia Pty Ltd undertook the review which was funded as a pilot project by the Department of Employment, Education and Training through its Innovative Skills Training Program. The review was managed by an eight person project team consisting of one

experienced representative from each functional work area, i.e.:

- management;
- supervisors;
- foremen;
- crane drivers;
- equipment operators;
- clerks;
- maintenance tradesmen; and
- general hands.

The skills review involved the following steps:

- preparation by the consultant of a preliminary list of skills for discussion and refinement by subject experts and the project team so as to produce a list of skills that is relevant, comprehensive and appropriately worded;
- preparation of a questionnaire based on the skills identified in the first step and designed to collect information on:
  - the personal characteristics of an employee,
  - the skills required in that employee's current position,

- the skills held by the employee and the self-nominated level of proficiency,
- general features of the work setting and attitudes about role in the industry,
- suggestions for improving operating procedures.

- conduct of a pilot test of the questionnaire and revision in the light of criticisms and suggestions;
- distribution and collection of the questionnaires;
- feedback of results to the project team for initial comment and checking of individual report format;
- formulation by the project team of an approximate hierarchy of skill complexity and importance;
- distribution of reports to each respondent, comparing the individual skills profile with the average for peers in the same occupational grouping;
- production of a report identifying for each major occupational group the skills required, training needs and responses about attitudes to work, and providing suggestions for the development of an integrated career path based on a hierarchy of skill complexity.

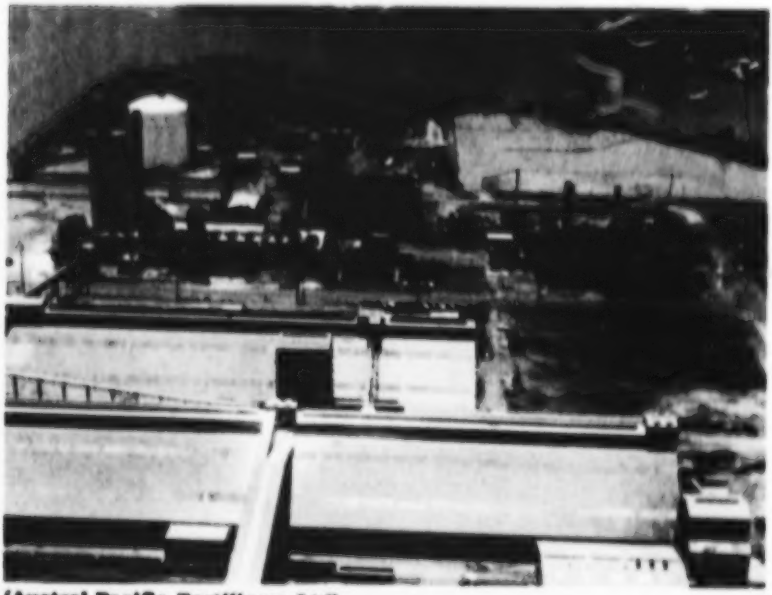
Questionnaires were distributed to all 360 employees and 221 usable ones were returned. The knowledge and skills information obtained was used to define existing jobs in terms of skills. This in turn was used by the project team to review the skills required for each job and rate their importance in terms of their complexity or difficulty of learning on a scale of zero to nine.

From these results a new job structure and career path was recommended. Training needs were also determined and prioritised. One of the main findings was that a high proportion of operational and clerical workers believed their current skill level was below that required to do their jobs properly. Clearly an extensive training program will be a crucial element in lifting efficiency and effectiveness on the waterfront.

The outcomes of this review have yet to be implemented. At present the recommended changes are being negotiated by the industrial parties.

Comment

This skills audit was a pilot project. As such the researchers recognise that additional information will be required to provide a complete skills profile for all the types of work on the waterfront. However, the participative process used at F.G. Strang Pty Ltd has provided a useful model for further work.



(Austral-Pacific Fertilisers Ltd)

Austral-Pacific Fertilizers: A sub-enterprise study.

This skills analysis of mechanical maintenance employees at Austral-Pacific Fertilizers Ltd (APF) Brisbane was undertaken in June 1989 by Geoff Hayton of the TAFE National Centre for Research and Development. He was assisted by Jeff Dennis, APF's Training Officer, and Kevin Squire from the Queensland Department of Employment, Vocational Education and Training.

APF's Gibson Island plant produces a range of agricultural and industrial chemicals. There are approximately 300 employees including 27 mechanical maintenance fitters.

The analysis was commissioned by APF following a dispute over the introduction of a new classification of Mechanical

Tradesperson - Special Class (MTSC). Tension was created when the maintenance fitters discovered that only two of their number were entitled to the new classification which had been introduced as part of the restructuring within the National Metal Industries Award.

The aims of the skills analysis which were agreed to by management and the union were:

1. To conduct a skills analysis of the various levels of mechanical maintenance employees;

2. To identify whether any employees met the definition of MTSC;

3. To identify the training required for the identified levels of mechanical maintenance employees if they are to meet the above definition;

4. To identify whether there is a parallel stream of skills equivalent to those envisaged by the MTSC definition in existence at APF;

5. If so, to identify the (vertical) level the stream of skills reaches and indicate:

   (i) whether they equate in (vertical) skill level to those of the above definition; and

   (ii) what additional training would be required for employees in the stream to equate in (vertical) skill level to those in the above definition.

A five person consultative committee set up specially for the project included the training officer, the plant engineer, the union delegate, a leading hand and a fitter.

This Committee made input and gave feedback at key stages of the project.

The questionnaire used was developed with assistance from members of the Consultative Committee. In all, 21 fitters were surveyed by a combination of individual interviews and completion of the questionnaire. The questionnaires were completed under supervision in a group and took about 90 minutes.

The analysis and reporting were undertaken in two stages:

1. Analysis of key factors reported to the Works Manager and Consultative Committee. These results were discussed and further analyses undertaken.

2. Final report to APF and Consultative Committee.

The results presented under four main headings may be summarised thus:

1. Job types. It was found that there were four clusters or groups of job types related to the different type of plant to be maintained. All jobs had a fairly uniform set of core skills, with leading hands requiring a more extensive set.

2. Classification of MTSC. Two fitters were identified as meeting the MTSC criteria and one was judged to be very close. Three others partly met the criteria but required further training.

3. Skill classification parallel to MTSC. A great deal of evidence relating to work requiring skills that were well above those normally required of a maintenance fitter and parallel in skill level to MTSC was collected. There were 26 skill areas identified in the parallel streams. Seven fitters claimed to be competent in all, or nearly all of these skills and another four claimed competence in a majority of skills. It was recommended that APF recognise these parallel skills, subject to verification of competency in the 26 skill areas.

4. Training. In-company training consisting of both off- and on-job components was recommended. Training priorities should include those needs identified in the 26 skill areas, together with skills required to assist with award restructuring, for example, interpersonal skills, team skills and quality improvement skills.

Comment

This skills audit closely follows the model outlined earlier. The emphasis placed on establishing an effective consultative process is commendable and evidently relates to the industrial dispute that precipitated the exercise.

The APF case study shows how an external consultant can complement the inputs of the in-house trainer and employee representatives. Prior groundwork undertaken by the Consultative Committee enabled the external consultant to design the questionnaire and conduct the audit in just four days.

Since the number of employees involved (27 out of 300) was not great, analysis of the information was carried out manually. If a larger number of subjects was involved, however, the researcher believes that a suitable database computer program would be needed to handle manipulation of the data.

The situation at APF demanded an urgent and mutually acceptable industrial outcome. The industrial dispute has been completely resolved and structured training has commenced. The new recommended classifications are currently being reviewed by the Consultative Committee. Both management and employees at APF now feel that a model has been established that will enable them to conduct further skills audits on an in-house basis.

IMPLEMENTATION

Implementation of the outcomes of a skills audit may be governed by the terms of a negotiated industrial agreement. Indeed, most skills audits that are undertaken as part of award restructuring will be subject to a formal agreement negotiated at either enterprise or industry level.

Recent skills audits where the outcomes have included skills upgrading and new career paths, have often been linked to productivity improvements. These improvements may be associated with the removal of unnecessary demarcation barriers, multi-skilling or the introduction of new technology.

The implications of a skills audit need careful consideration and should be tied to an organisation's corporate strategy. If the audit reveals hidden or under-utilised talent, the plan can be expanded to take advantage of these. On the other hand, if the audit shows up deficiencies in the skills needed to achieve the planned goals, the firm can either revise its objectives or consider training options.

A comparison of training and non-training solutions should be undertaken. For instance, in the short-term it may be less expensive to recruit new workers than to retrain existing ones. In the long run, however, the cost of high labour turnover may prove retraining to be the less costly option.

Australia's firms have provided relatively little internal training because of their reliance on external labour markets. Until recently one of these was the plentiful

supply of skilled migrants. The other main external source was that of craft apprenticeships which has allowed inter-firm mobility of tradespeople.

In countries like West Germany and Japan, however, extended on-the-job training has meant that enterprises tend to generate the required skills within their existing workforces. It remains to be seen whether the workplace culture in Australia will change sufficiently to embrace this concept of life-long training and retraining.

The wider processes of industrial reform will neither be short nor painless. In the absence of renewed protectionism, those industries which are facing pressure from overseas competition will be the first to be put to the test. The challenge needs to be accepted equally by employers and employees.

Chief executives must become visionaries and champions. Middle managers and first line supervisors must become coaches and facilitators. Individual employees will need to work in teams and share skills and experience. Unions will need to look beyond narrow award provisions and consider ways of providing durable and rewarding career paths for their members.

While skills audits are the starting point for award and industry restructuring, they cannot be regarded as one-off exercises. As markets, technology and workers' expectations change, skills audits should be repeated regularly to ensure a match between skills demand and supply.

(CALS Media Unit)

FURTHER READING

ACTU/TDC Mission to Western Europe. (1987). ***Australia Reconstructed: A report by the Mission Members***. AGPS, Canberra.

The ACTU/TDC Mission report describes the observations of Mission members and their assessment of the implications of these observations for Australia. The report is divided into six chapters each dealing with one major policy area, viz. macroeconomic policy; wages; prices and incomes; trade and industry; and trade unions. Within these chapters, the common elements of successful approaches to these issues are isolated and specific examples given. The report also contains recommendations based on insights gained from the processes and policies which have proved successful elsewhere and which are adaptable to the Australian situation.

Anderson, T. & Jones, N. (1986). ***TAFE Curriculum Research: A review of group process methods***. TAFE National Centre for Research and Development, Adelaide.

This TAFE national project examines ways in which technical and further education curriculum research can be speeded-up in the data collection and analysis phases. After discussing the need for preliminary investigation the study describes and analyses the following research procedures; exploratory (qualitative) research, the Search Conference Method, the DACUM (developing a curriculum) Method and derivatives of DACUM, the Nominal Group Technique, the Delphi Method, the Critical Incident Technique and Force Field Analysis. The methods were

chosen after reviewing the literature and research methods used in TAFE. Since these methods provide different perspectives on occupational analysis and therefore yield different types of data, some ways in which they can be used in combination are covered. A guide to the selection of the methods is provided.

Australian Institute of Training and Development. (1987). "Analysing training needs." ***Human Resource Development in Action***, No. 91, April-May.

This paper is designed as a useful guide for those who havn't had much experience in training needs analysis. The guide is presented in a six step closed loop cycle which covers the entire training cycle, from identification of training needs to the final satisfaction of those needs. Questions or statements have been listed in each step to imply what tasks should be done to accomplish the set objectives and also to give a means of progressive evaluation. The model is based on one devised by T.H. Boydell.

Australian Manufacturing Council & Employment and Skills Formation Council. (1988). Report of Proceedings of Workshop on Skills in Australian Industry. Held Melbourne, november 20-22, 1988. Canberra.

This report details the proceedings of the Workshop whose theme was Skills in Australian Industry. Concentrating primarily on the approaches and processes necessary for industries to achieve award restructuring, the benefits to flow from award restructuring are described, and strategies for the development of skills in individual industries are

reported. The role of ITCs and TAFE in award restructuring is described. The need for management training to cope with these changes is also emphasized as is the funding of training.

Bone, J. (1988). ***Training Models Used in Industry.*** TAFE National Centre for Research and Development, Adelaide.

Training and staff development initiatives in Australian industrial and commercial organisations are described. The report attempts to describe various aspects of training including the organisational philosophy or approach to staff training, the methods adopted in identifying training needs, developing training initiatives, presenting training activities and evaluating the effectiveness of training undertaken in each organisation. These aspects are considered in terms of training models and their appropriateness and effectiveness are discussed.

Bradburn, N.M., Sudman, S. and Associates. (1979). ***Improving Interview Method and Questionnaire Design.*** Jossey-Bass, San Francisco.

Findings from a series of experimental studies conducted jointly by the National Opinion Research Center and the Survey Research Laboratory are reported in this book. Information is provided on how underreporting and overreporting of behaviour varies according to a question's degree of threat and a respondent's characteristics. Several research-proven procedures for increasing reporting and minimizing distortion are described. It is intended that this book will assist both users and gatherers of survey data.

Carlisle, K. E. (1986). ***Analysing Jobs and Tasks***. Educational Technology Publications, Englewood Cliffs, N.J.

This book contains an extensive collection of job and task analysis techniques. Each technique is flow-charted and described. Charts, diagrams, decision guides, job aids and real life examples are given. The book is divided into the following sections: getting ready to analyse the job; finding what the job is; finding how to learn the job; and completing the analysis. A detailed bibliography of job and task analysis literature completes the book.

Curtain, R. (1988). ***Guidelines on Career Path Development and Job Restructuring: Fifteen issues to consider***. University of Sydney, Department of Industrial Relations, Sydney. (Working paper Series, No. 8, 1988.)

The purpose of this paper is to provide employers and unions with a checklist of 15 points or issues that may be considered in award restructuring negotiations, and that could provide a basis for formulating an industry level framework for restructuring and options for career paths within and between enterprises. The paper includes a discussion of each issue. It was originally published as Chapter 5 of a report to the Interstate Commission and the Stevedoring Industry Review Committee entitled Options for Skills Upgrading, Career Paths and New Job Structures for the Stevedoring Industry. However, the guidelines are framed in such a way as to apply to industry in general.

Dawkins, J.S. (1989). ***Improving Australia's Training System.*** A statement made by the Minister for Employment, Education and Training. AGPS, Canberra.

The award restructuring process now underway carries major implications for Australia's education and training systems. This statement issued on behalf of the Minister sets down the Government's goals and priorities for the national training system, and announces a range of immediate measures to enhance its quality, flexibility and national consistency, and increase the equity of access to training.

Department of Employment, Education and Training, Training Services Australia. (1989). ***Training Needs Analysis.*** AGPS, Canberra.

This document summarises the methods of occupational and training needs analysis and provides guidance in choosing the most suitable method and is intended for training development executives and officers in ITCs, TAFE curriculum designers and training providers who have responsibility for developing training programs in their own organisations both in the private and public sector.

Department of Industrial Relations. (1988). ***Labour Market Reform: The industrial relations agenda.*** AGPS, Canberra.

This paper outlines a comprehensive approach to the industrial relations aspects of labour market reform and links them with other key policy areas such as employment, education and training, and industry policy. A comprehensive restructuring of industrial awards at the

industry level is identified as the key feature of the reform process. This will provide the necessary framework for the integration of job classifications and the development of skill-based career paths. Award restructuring will have important flow-on effects to the training system. The document emphasises the need to increase the relevance of training arrangements to industry requirements.

Gough, R. & Stiller, L. (1983). "Technology, control, information and work organisation: What are the options?" ***Work and People***, 9(2), 9-13.

New technology has the potential to restrict or expand opportunities for effective job redesign in an organisation. This article discusses a range of technological and organisation design options and highlights the political nature of design solutions. Two specific examples discussed are information technology and metal product manufacturing technology. Information systems and information technologies are highlighted as being a crucial concern in relation to job redesign.

Guthrie, H. (1987). ***A Review of Literature on Occupational Analysis and Training Needs Analysis***. TAFE National Centre for Research and Development, Adelaide.

This paper is an outcome of the project entitled: Training Needs Analysis Methodologies. This review was written to raise some questions about why an occupational or training needs analysis might be done and what sort of information these analyses could provide: it does not however, aim to be definitive - it is merely an introduction. The paper considers what occupational and training needs

analyses are. They are also described in the context of other analyses used to solve human resource problems.

Hall, W.C. ed. (1989). *Industry Restructuring: Extracts from Centre publications*. TAFE National Centre for Research and Development, Adelaide.

This document contains twelve articles/extracts and is intended as background reading and/or part of an in-service course on award restructuring. It provides a straightforward account of industry restructuring and discusses the implications of restructuring for TAFE courses, TAFE teachers and industrial training. It makes a special plea for continuing education programs which enable TAFE lecturers to update their technical/vocational knowledge and skills in their teaching areas, pointing out that there is an urgent need to provide ways in which teachers can keep abreast of technological change.

Hall, W.C. & Hayton, G. (1988). Industry Restructuring and TAFE: A discussion paper. TAFE National Centre for Research and Development, Adelaide.

This booklet provides a summary of industry restructuring, and discusses the implications for TAFE courses and TAFE teachers. It aims to encourage discussion within TAFE colleges of the main issues arising from the restructuring challenge.

Hayton, G., Clark, T., Guthrie, H., Fuller, D. & Oxley, S. (1988). ***Training for Australian Industry: A guide to research techniques for assessing industry training requirements***. Department of Employment, Education and Training, Canberra.

This Manual is designed to assist those concerned with advice to government, and education and training authorities, on the skill requirements for industry, and presents a methodology for industry and labour market analysis, and for occupational and training needs analysis. This Manual will serve as the basis for the development of packages aimed at developing the skill base of Australian industry.

Hayton, G. & Guthrie, H. (1987). "Analysis for industry training committees: A definitions paper." TAFE National Centre for Research and Development, Adelaide.

This paper is an outcome of the project entitled: Training Needs Analysis Methodologies. In this paper the authors contend that Industry Training Committees (ITCs) require comprehensive analyses at various levels if they are to make informed and sustainable recommendations about the training needs of their respective industries. Before defining training needs in this paper, a comprehensive scheme of identification and analysis of human resource problems is briefly described in order to place training needs in an appropriate context. The scheme described here is the basis for the manual on workforce study methods.

Hayton, G. (1988a). ***An Introduction to the CODAP Method of Occupational Analysis***. TAFE National Centre for Research and Development, Adelaide.

A description of CODAP is given in this paper, beginning with an account of the research procedure which covers the following steps: define the population; select the sample; construct task inventory; develop the questionnaire; administer and analyse the survey data; report the results. An estimate of costs and the strengths and weaknesses of CODAP are given. An example of a questionnaire used in a CODAP study is given in an attachment.

Hayton, G. (1988b). "Translation of labour market needs into training responses." Paper presented at the Conference on Australian Skills Shortages and Labour Market Data, Centre for Research in Education and Work, School of Education, Macquarie University, Sydney, May 12-13, 1988.

This paper argues that the present methods of translating labour market needs into training responses will need to change to take account of the different economic setting in Australia now and in the future. Consequently the paper outlines: the changing economic setting; some problems with the present approaches to translating labour market needs into training responses; a suggested new integrated approach. The paper concludes by focusing on the manufacturing industries and outlines some possible effects on training responses of the changing economic setting.

Hayton, G. (1989a). ***Skills Analysis of Mechanical Maintenance Employees at Austral-Pacific Fertilizers Ltd.*** TAFE National Centre for Research and Development, Adelaide.

This report documents a skill analysis commissioned by Austral-Pacific Fertilizers, Brisbane of their Mechanical Maintenance (Fitting Trade) employees and undertaken by the TAFE National Centre for Research and Development. Of the five sections which comprise the report the first offers an introduction and background to the project while the second and third describe the project aims and project method. The methodology adopted utilised a step-by-step procedure of the skills analysis in consultation with APF. The importance of consultative committees at key steps in the procedure is emphasised in this section. The next section describes the results of the analysis while the final section, Attachments: includes details of the research procedure, the questionnaire, job profiles, and skill profiles.

Hayton, G. (1989b). "Skills audits and training needs analysis". Paper presented at the DIR/DEET Seminar on Industrial Relations, Award Restructuring and Skills Audits", Canberra May, 1989. TAFE National Centre for Research and Development, Adelaide.

In the first part of this paper the work that the TAFE National Centre is doing in the area of skills audits and skills audits research is described especially projects in the areas of training needs analysis, and occupational analysis both of which are important in the context of industry restructuring. The rest of the paper discusses the relationships between skills audits and award

restructuring: and skills audits and training needs analysis, with a suggested role for TAFE in skills audits. The paper concludes with suggested guidelines for further development of skills audit approaches.

Hayton, G. & Harun, M. (1988). ***Training for Integrated Manufacturing: A review of recent literature***. TAFE National Centre for Research and Development, Adelaide.

An explanation of integrated manufacture is provided and then the literature covering the trend from mass production to integrated (or flexible) manufacturing is discussed. Technical and human aspects of integrated manufacturing are considered. The effects on the manufacturing skill requirements are discussed with reference to the literature. The paper concludes by examining the implications of integrated manufacturing for TAFE and industry training.

Hermann, G.D. (1987). ***Manual on Occupational Analysis***. Centre for Research in Education and Work, School of Education, Macquarie University, Sydney.

This is a trial edition of a short manual which discusses a number of factors involved in obtaining occupational information required to establish courses that will meet the needs of industry. Occupational analysis methods and techniques are described. Extensive use is made of flow charts to illustrate the processes involved in occupational analysis. A glossary and list of references complete the publication.

Interstate Commission. (1989). ***Interstate Commission Waterfront Investigation: Special studies volume one.*** AGPS, Canberra.

Parts of this volume provide useful guidance on methods of job redesign, skills analysis and development of career paths. Part 4 contains a pilot study on participative job design by Richard Curtain and Neil Watson. It describes the seven stages of job redesign using a socio-technical systems approach. Part 5 contains a description of a study undertaken by Richard Curtain and Optimise Australia Pty Ltd., which involved a skills review, identification of training needs and development of career paths.

Mager, R.F. & Pipe, P. (1984). ***Analysing Performance Problems.*** Fearon, Belmont, CA.

This book describes a step-by-step procedure for analysing job performance problems which may have been identified through a training needs analysis. A wide range of possible training and non-training solutions is suggested, with frequent illustrations being offered throughout the text.

Matthews, J. (1989). ***Award Restructuring: The challenges and opportunities for TAFE.*** State Training Board, Melbourne.

This report summarises information currently available on Award Restructuring and industry training, drawing some of the implications for TAFE. The paper outlines the scope

of the changes to job structures and skill formation processes that are likely to flow from award restructuring. Also examined are the training developments already underway in industry, based fundamentally on moves in the direction of competency-based job structures and training. Therefore, as the major public provider of training services to industry, TAFE will inevitably have to rethink the mode and scope of its operations, as skill and training become more focused elements of Australia's industrial revival.

Naisbitt, J. (1984). ***Megatrends: Ten new directions transforming our lives***. Macdonald & Co., London.

This book is considered by many commentators to have been the future forecast for the Eighties. It followed in the tradition of Herman Khan and Alvin Toffler. Many of its predictions concerning the impact of profound technological development have already proven to be accurate. Of particular note are Part 1: Industrial Society - Information Society; Part 2: Forced Technology - High Tech/High Touch and Part 7: Representative Democracy - Participative Democracy.

Peters, T. (1988). ***Thriving On Chaos: Handbook for a management revolution***. Macmillan, London.

Peters provides forty five different prescriptions for managing in a world that is both rapidly changing and unpredictable. These are divided into five main sections: (i) Creating Total Customer Responsiveness; (ii) Pursuing Fast-Paced Innovation; (iii) Achieving Flexibility by

Empowering People; (iv) Learning to Love Change; and (v) Building Systems for a World Turned Upside Down. Sections (i) and (iii) are particularly instructive.

Weisbord, M. (1987). ***Productive Workplaces: Organising and managing for dignity, meaning and community***. San Francisco: Jossey-Bass.

This book presents a socio-technical systems approach to work organisation and job design. The author states that his approach has been influenced by four major writers in the field: McGregor, Lewin, Taylor and Emery. The book has three major themes; firstly that people are more productive when "community" is established in the workplace; secondly, that there has been a shift away from "problem solving" toward whole-systems improvements where there is interaction between experts and operatives in making improvements, and finally; discusses the "human side of enterprise", and suggests productivity is associated with human attitudes and behaviour.

Williams, B. & Hayton, G. (1987). ***Report on Survey of Methods of Occupational and Training Needs Analysis***. TAFE National Centre for Research and Development, Adelaide.

This report is an outcome of a project entitled: Training Needs Analysis Methodologies, the purpose of which was to identify the most cost effective methods of data collection and analysis on which to base training. This document is concerned with the survey conducted within the Training Needs Analysis component of the project. The objectives of

the survey were to describe the experiences of trainers in industry and to determine their requirements. The survey methodology is described firstly, followed by the results and finally a summary and conclusion.

***Workplace Change* No. 2 (October 1988)**. Department of Industrial Relations p.3.

A brief overview of the new wages system as introduced by the Conciliation and Arbitration Commission in August 1988 that will both maintain the value of wages and encourage the restructuring of outdated awards - a major impediment to productivity growth.

Youngman, M.B. et al. (1978). *Analysing Jobs*. Gower, Aldershot, Eng.

This text reports research undertaken by the authors evaluating training schemes in the light of industrial performance. They argue that this evaluation can only take place if the behaviourial objectives of the training are first defined, with the objectives being based on information about the work done and the organisational structure in which it is undertaken. To this end the authors developed a methodology for work analysis which takes account of organisational structure and the attitudes which people bring to their jobs. Chapters 2,3 and 4 describe the development of the analysis technique, its characteristics and outcomes. Chapter 5 considers the firm as a learning environment while Chapter 6 considers its more general applications for job analysis and the labour market.

Zemke, R. & Kramlinger, T. (1982). ***Figuring Things Out: A trainer's guide to needs and task analysis.*** Addison-Wesley, Reading, MA.

This text offers a system for conducting organisational effectiveness studies determining training needs, and performing task analysis. Section I describes the rationale and tactics for conducting this type of study and offers guidance on formulation of a performance model. Sections II to V explain in detail the techniques and procedures, complete with examples. Section VI describes techniques for matching techniques with problems while the last section shows how to structure and deliver a presentation of results. Appendix A is a transcript of a paper on task analysis by Robert Gagne; while Appendix B is a paper by John Flanagan on Critical Incident Technique; and Appendix C is a bibliography.